

§ 98.470

40 CFR Ch. I (7–1–12 Edition)

[75 FR 39773, July 12, 2010, as amended at 76 FR 73910, Nov. 29, 2011]

Subpart UU—Injection of Carbon Dioxide

SOURCE: 75 FR 75086, Dec. 1, 2010, unless otherwise noted.

§ 98.470 Definition of the source category.

(a) The injection of carbon dioxide (CO₂) source category comprises any well or group of wells that inject a CO₂ stream into the subsurface.

(b) If you report under subpart RR of this part for a well or group of wells, you are not required to report under this subpart for that well or group of wells.

(c) A facility that is subject to this part only because it is subject to subpart UU of this part is not required to report emissions under subpart C of this part or any other subpart listed in § 98.2(a)(1) or (a)(2).

§ 98.471 Reporting threshold.

(a) You must report under this subpart if your facility injects any amount of CO₂ into the subsurface.

(b) For purposes of this subpart, any reference to CO₂ emissions in § 98.2(i) shall mean CO₂ received.

§ 98.472 GHGs to report.

You must report the mass of CO₂ received.

§ 98.473 Calculating CO₂ received.

(a) You must calculate and report the annual mass of CO₂ received by pipeline using the procedures in paragraphs (a)(1) or (a)(2) of this section and the procedures in paragraph (a)(3) of this section, if applicable.

(1) For a mass flow meter, you must calculate the total annual mass of CO₂ in a CO₂ stream received in metric tons by multiplying the mass flow by the CO₂ concentration in the flow, according to Equation UU-1 of this section. You must collect these data quarterly. Mass flow and concentration data measurements must be made in accordance with § 98.474.

$$CO_{2T,r} = \sum_{p=1}^4 (Q_{r,p} - S_{r,p}) * C_{CO_{2,p,r}} \quad (\text{Eq. UU-1})$$

where:

CO_{2T,r} = Net annual mass of CO₂ received through flow meter r (metric tons).

Q_{r,p} = Quarterly mass flow through a receiving flow meter r in quarter p (metric tons).

S_{r,p} = Quarterly mass flow through a receiving flow meter r that is redelivered to another facility without being injected into your well in quarter p (metric tons).

C_{CO₂,p,r} = Quarterly CO₂ concentration measurement in flow for flow meter r in quarter p (wt. percent CO₂, expressed as a decimal fraction).

p = Quarter of the year.

r = Receiving flow meter.

(2) For a volumetric flow meter, you must calculate the total annual mass of CO₂ in a CO₂ stream received in metric tons by multiplying the volumetric flow at standard conditions by the CO₂ concentration in the flow and the density of CO₂ at standard conditions, according to Equation UU-2 of this section. You must collect these data quarterly. Volumetric flow and concentration data measurements must be made in accordance with § 98.474.

$$CO_{2T,r} = \sum_{p=1}^4 (Q_{r,p} - S_{r,p}) * D * C_{CO_{2,p,r}} \quad (\text{Eq. UU-2})$$

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where:

$CO_{2T,r}$ = Net annual mass of CO_2 received through flow meter r (metric tons).

$Q_{r,p}$ = Quarterly volumetric flow through a receiving flow meter r in quarter p at standard conditions (standard cubic meters).

$S_{r,p}$ = Quarterly volumetric flow through a receiving flow meter r that is redelivered to another facility without being injected into your well in quarter p (standard cubic meters).

D = Density of CO_2 at standard conditions (metric tons per standard cubic meter): 0.0018704.

$$CO_2 = \sum_{r=1}^R CO_{2T,r} \quad (\text{Eq. UU-3})$$

where:

CO_2 = Total net annual mass of CO_2 received (metric tons).

$CO_{2T,r}$ = Net annual mass of CO_2 received (metric tons) as calculated in Equation UU-1 or UU-2 for flow meter r .

r = Receiving flow meter.

(b) You must calculate and report the annual mass of CO_2 received in containers using the procedures specified in either paragraph (b)(1) or (b)(2) of this section.

(1) If you are measuring the mass of contents in a container under the provisions of § 98.474(a)(2)(i), you must calculate the CO_2 received in containers using Equation UU-1 of this section.

where:

$CO_{2T,r}$ = Annual mass of CO_2 received in containers r (metric tons).

$C_{CO_2,p,r}$ = Quarterly CO_2 concentration measurement of contents in containers r in quarter p (wt. percent CO_2 , expressed as a decimal fraction).

$Q_{r,p}$ = Quarterly mass of contents in containers r in quarter p (metric tons).

$S_{r,p}$ = Quarterly mass of contents in containers r that is redelivered to another facility without being injected into your well in quarter p (standard cubic meters).

p = Quarter of the year.

r = Containers.

(2) If you are measuring the volume of contents in a container under the provisions of § 98.474(a)(2)(ii), you must calculate the CO_2 received in containers using Equation UU-2 of this section.

$C_{CO_2,p,r}$ = Quarterly CO_2 concentration measurement in flow for flow meter r in quarter p (vol. percent CO_2 , expressed as a decimal fraction).

p = Quarter of the year.

r = Receiving flow meter.

(3) If you receive CO_2 through more than one flow meter, you must sum the mass of all CO_2 received in accordance with the procedure specified in Equation UU-3 of this section.

where:

$CO_{2T,r}$ = Annual mass of CO_2 received in containers r (metric tons).

$C_{CO_2,p,r}$ = Quarterly CO_2 concentration measurement of contents in containers r in quarter p (vol. percent CO_2 , expressed as a decimal fraction).

$S_{r,p}$ = Quarterly mass of contents in containers r that is redelivered to another facility without being injected into your well in quarter p (standard cubic meters).

$Q_{r,p}$ = Quarterly volume of contents in containers r in quarter p (standard cubic meters).

D = Density of the CO_2 received in containers at standard conditions (metric tons per standard cubic meter): 0.0018682.

p = Quarter of the year.

r = Containers.

§ 98.474 Monitoring and QA/QC requirements.

(a) *CO₂ received.*

(1) You must determine the quarterly flow rate of CO_2 received by pipeline by following the most appropriate of the following procedures:

(i) You may measure flow rate at the receiving custody transfer meter prior to any subsequent processing operations at the facility and collect the flow rate quarterly.

(ii) If you took ownership of the CO_2 in a commercial transaction, you may use the quarterly flow rate data from the sales contract if it is a one-time transaction or from invoices or manifests if it is an ongoing commercial transaction with discrete shipments.